#4-

FIG. 1 A

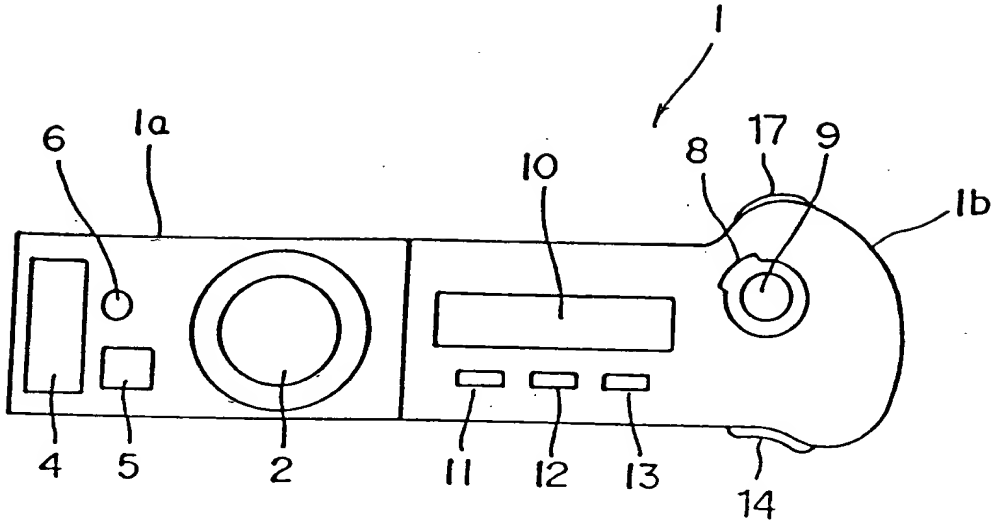


FIG. 1 B

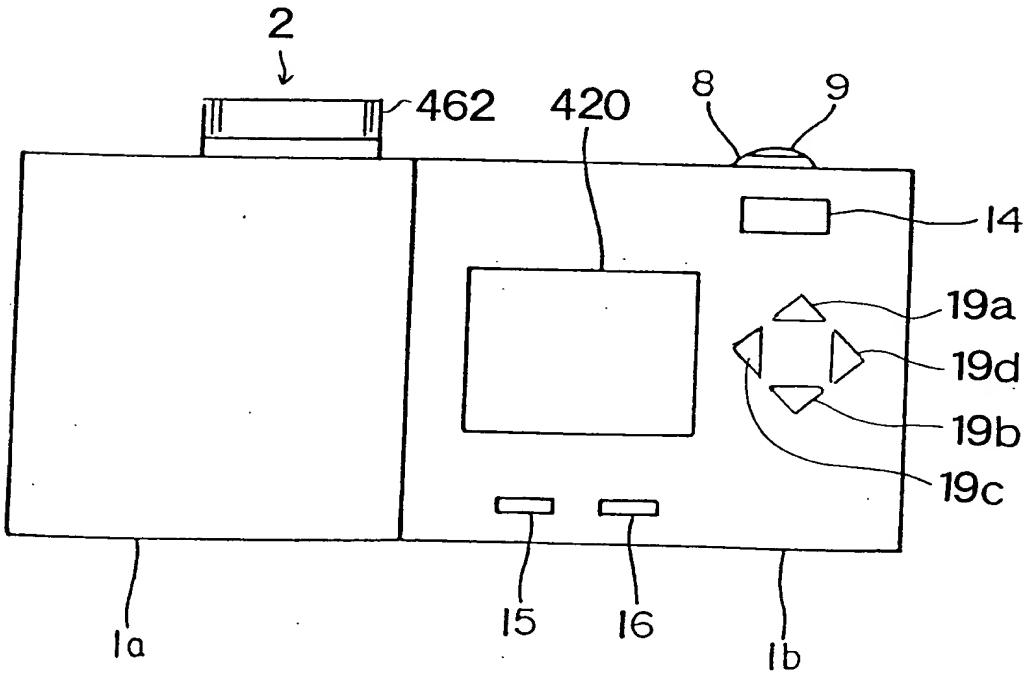


FIG. 2 A

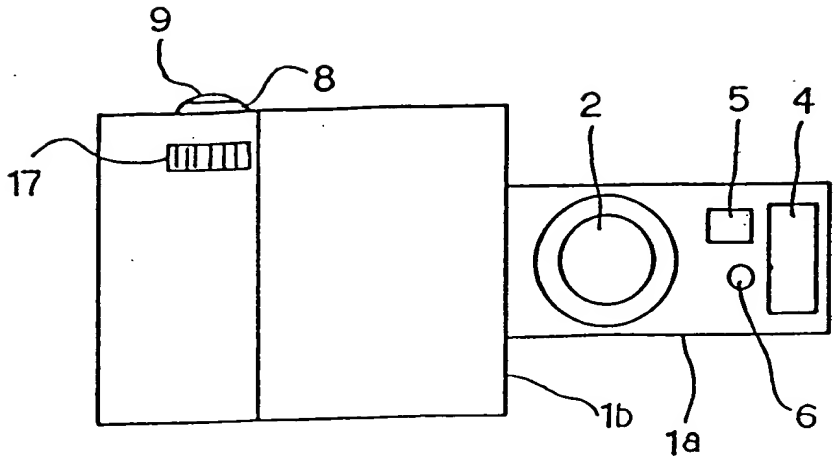


FIG. 2 B

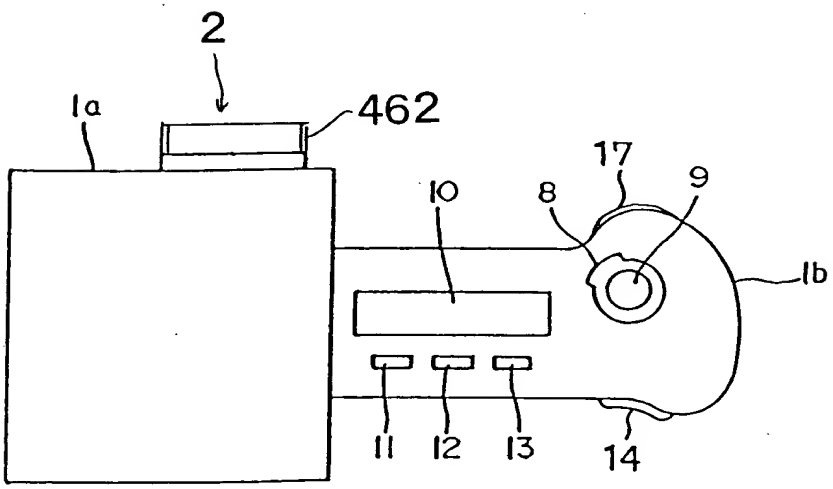


FIG. 2C

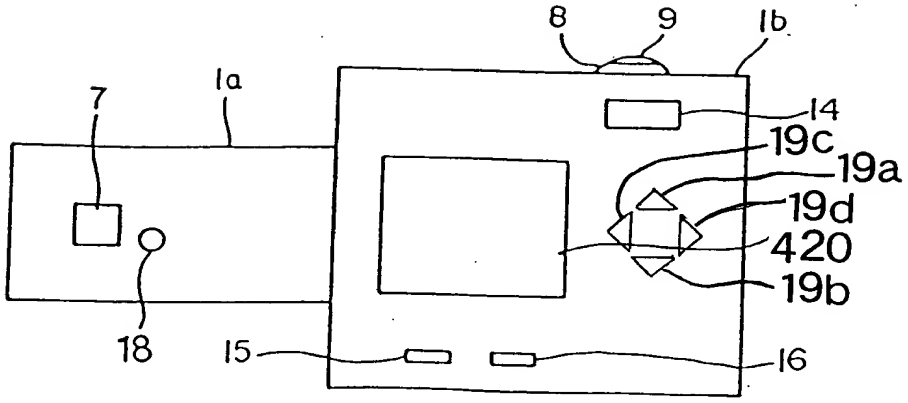


FIG.3

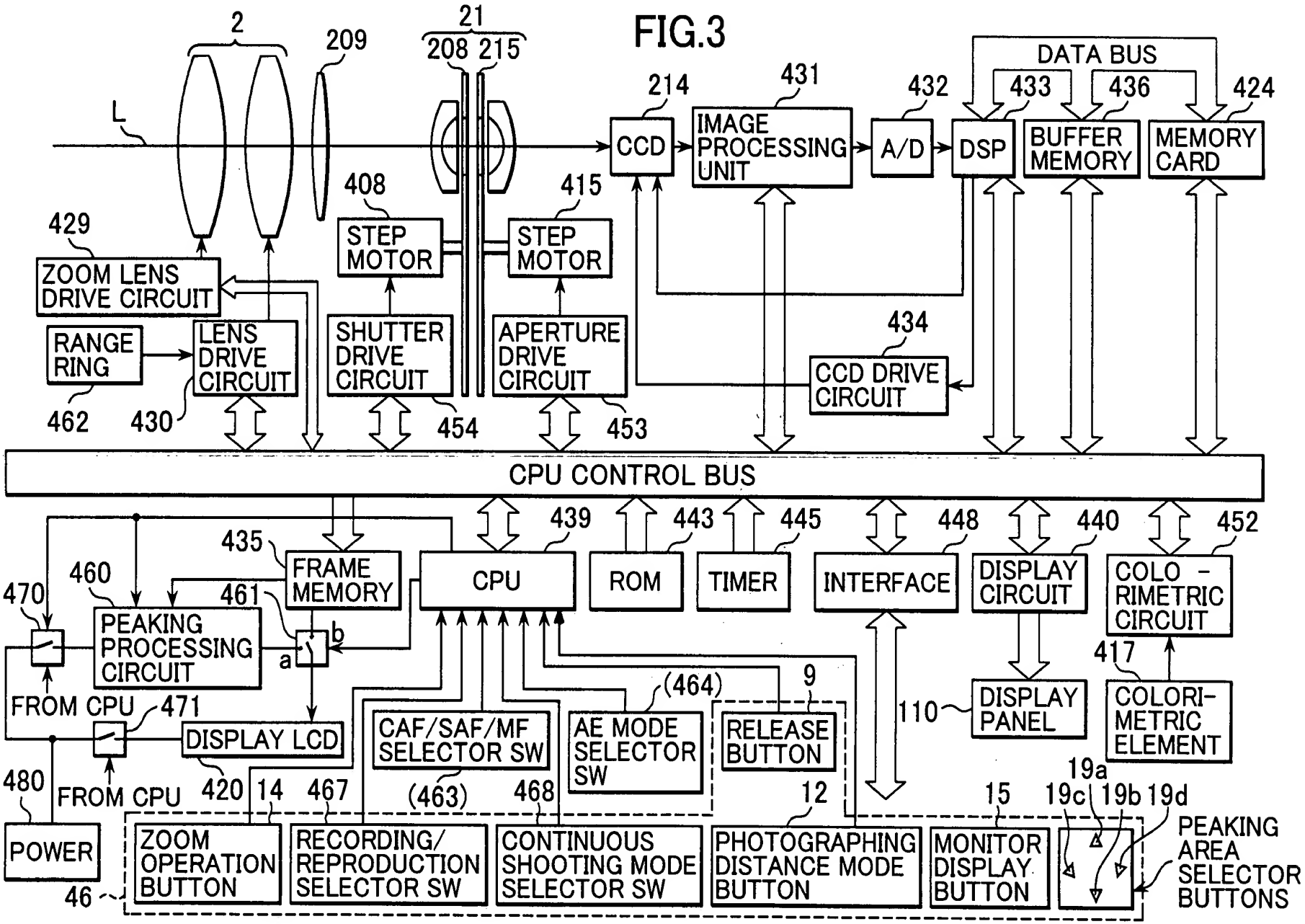

2
209
21
208 215
L
214
CCD
431
IMAGE PROCESSING UNIT
432
A/D
DATA BUS
433
436
424
DSP
BUFFER MEMORY
MEMORY CARD
408
415
429
STEP MOTOR
STEP MOTOR
ZOOM LENS DRIVE CIRCUIT
RANGE RING
LENS DRIVE CIRCUIT
SHUTTER DRIVE CIRCUIT
APERTURE DRIVE CIRCUIT
434
CCD DRIVE CIRCUIT
462
430
454
453
CPU CONTROL BUS
439
443
445
448
440
452
435
FRAME MEMORY
CPU
ROM
TIMER
INTERFACE
DISPLAY CIRCUIT
COLO - RIMETRIC CIRCUIT
460
470
461
PEAKING PROCESSING CIRCUIT
b
a
417
(464)
9
FROM CPU
471
DISPLAY LCD
CAF/SAF/MF SELECTOR SW
AE MODE SELECTOR SW
RELEASE BUTTON
110
DISPLAY PANEL
COLORI-METRIC ELEMENT
480
FROM CPU
420
14
467
(463)
468
12
15
19a
19c
19b
19d
POWER
ZOOM OPERATION BUTTON
RECORDING/ REPRODUCTION SELECTOR SW
CONTINUOUS SHOOTING MODE SELECTOR SW
PHOTOGRAPHING DISTANCE MODE BUTTON
MONITOR DISPLAY BUTTON
PEAKING AREA SELECTOR BUTTONS
46

FIG. 4

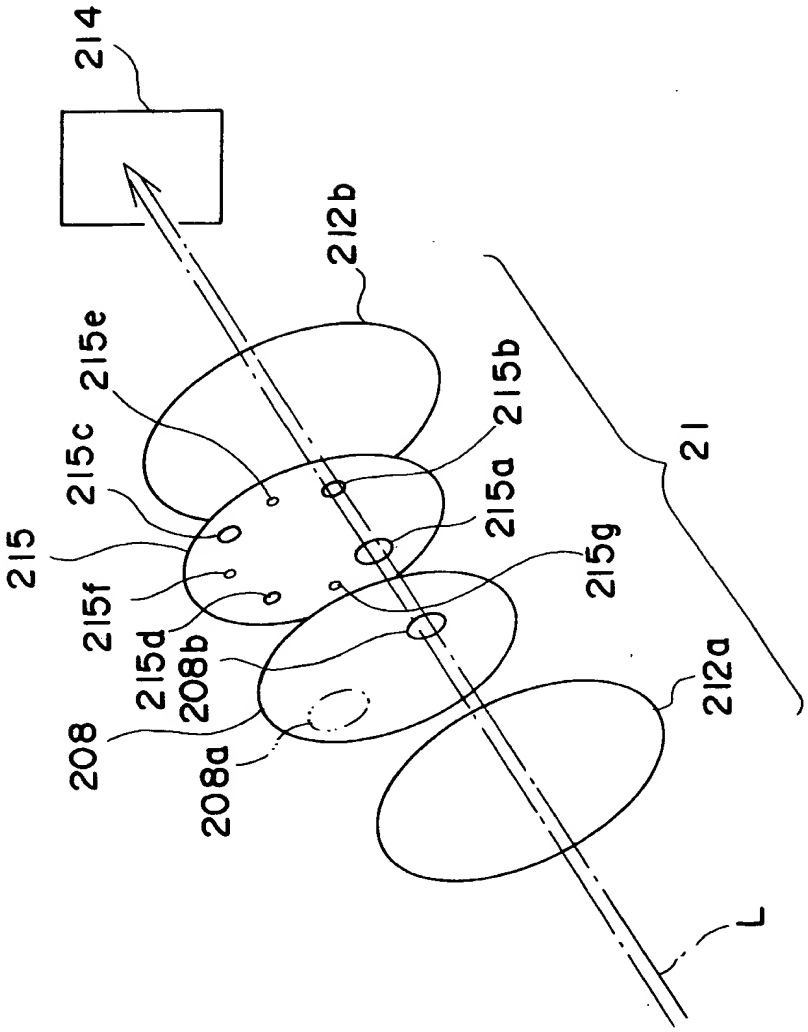

214
212b
215e
215c
215
215f
215d
208b
208
208a
215a
215b
215g
21
212a
L

FIG.5

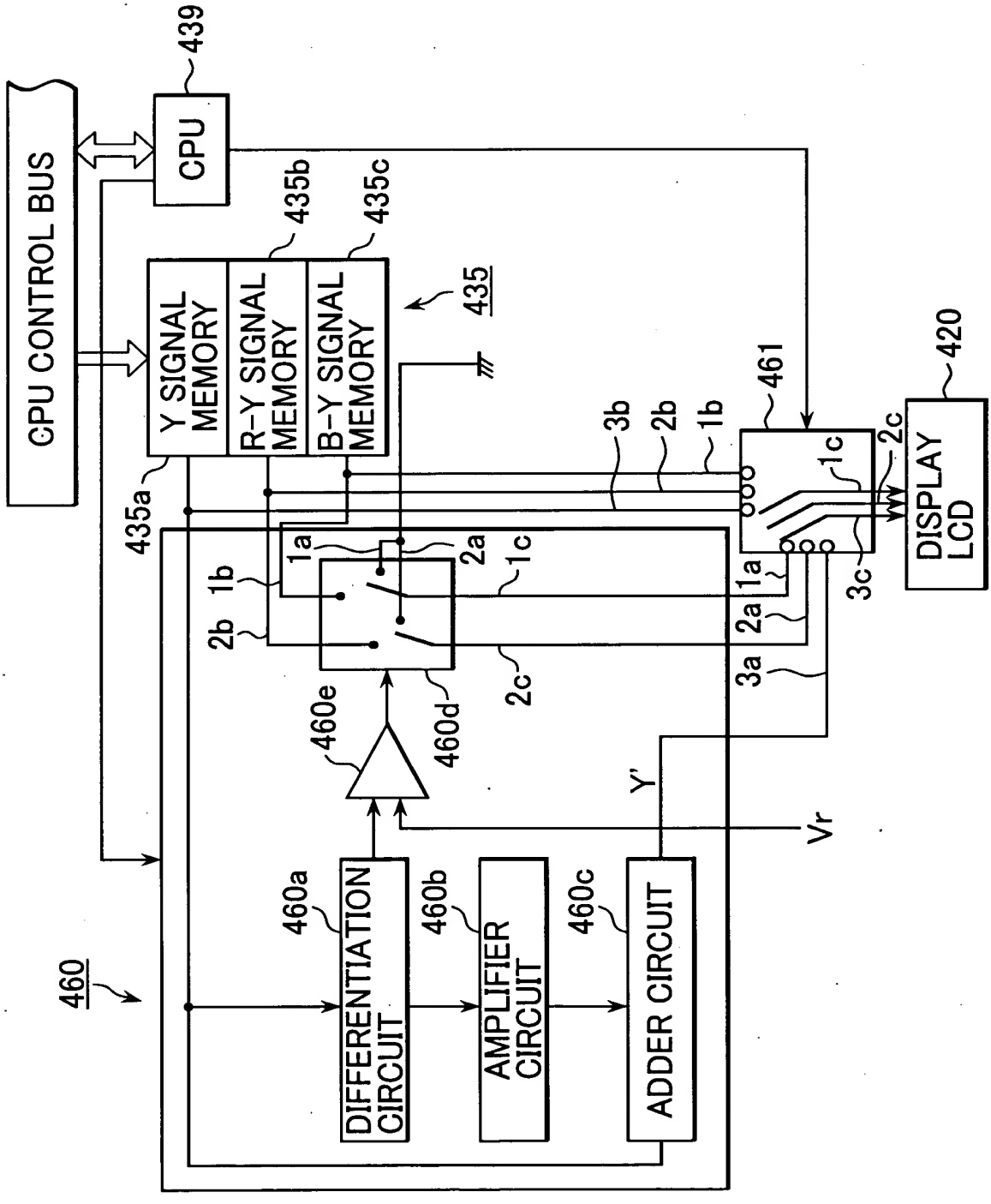

CPU CONTROL BUS
CPU
439
Y SIGNAL MEMORY
R-Y SIGNAL MEMORY
B-Y SIGNAL MEMORY
435
435a
435b
435c
461
420
DISPLAY LCD
460
DIFFERENTIATION CIRCUIT
AMPLIFIER CIRCUIT
ADDER CIRCUIT
460a
460b
460c
460d
460e
Y'
Vr
1a
1b
1c
2a
2b
2c
3a
3b
3c

FIG.6A

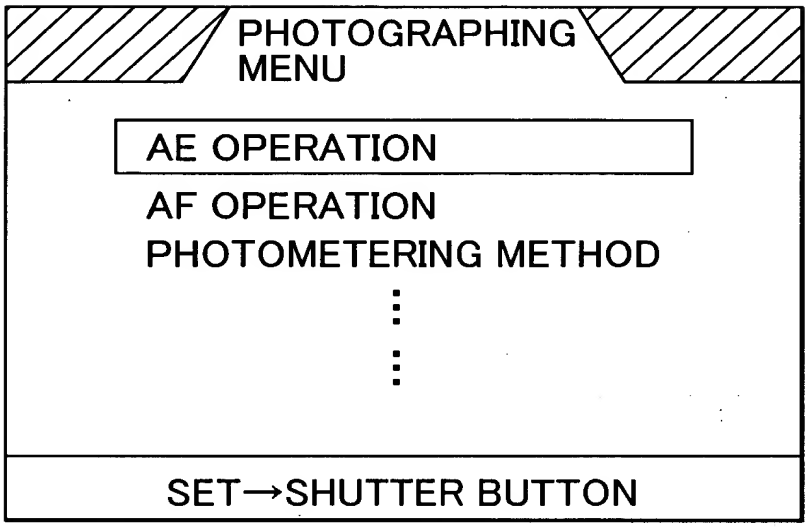

PHOTOGRAPHING MENU
AE OPERATION
AF OPERATION
PHOTOMETERING METHOD
SET→SHUTTER BUTTON

FIG.6B

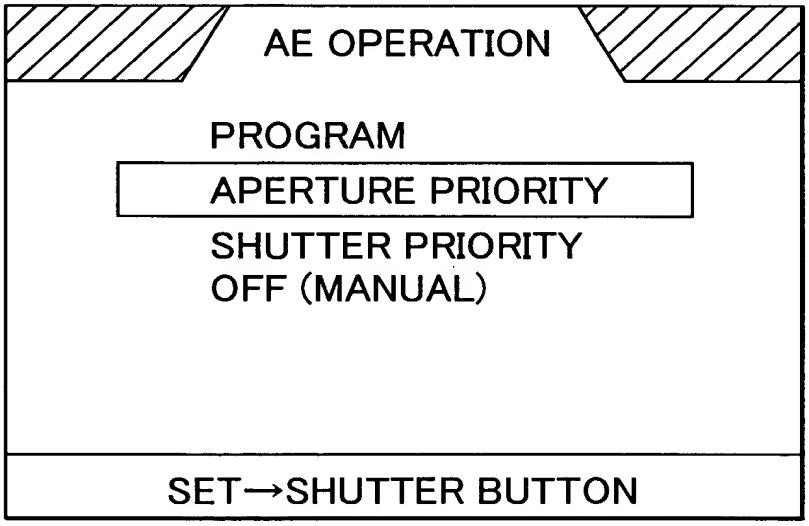

AE OPERATION
PROGRAM
APERTURE PRIORITY
SHUTTER PRIORITY
OFF (MANUAL)
SET→SHUTTER BUTTON

FIG.7A

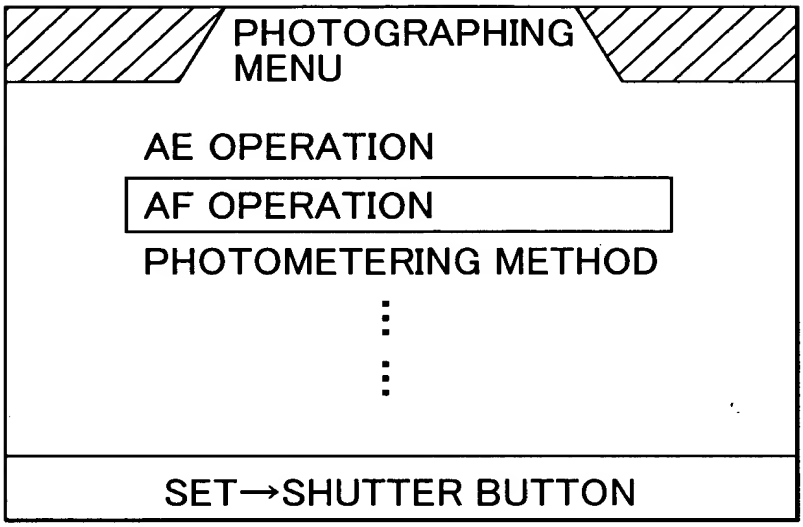

PHOTOGRAPHING MENU
AE OPERATION
AF OPERATION
PHOTOMETERING METHOD
SET→SHUTTER BUTTON

FIG.7B

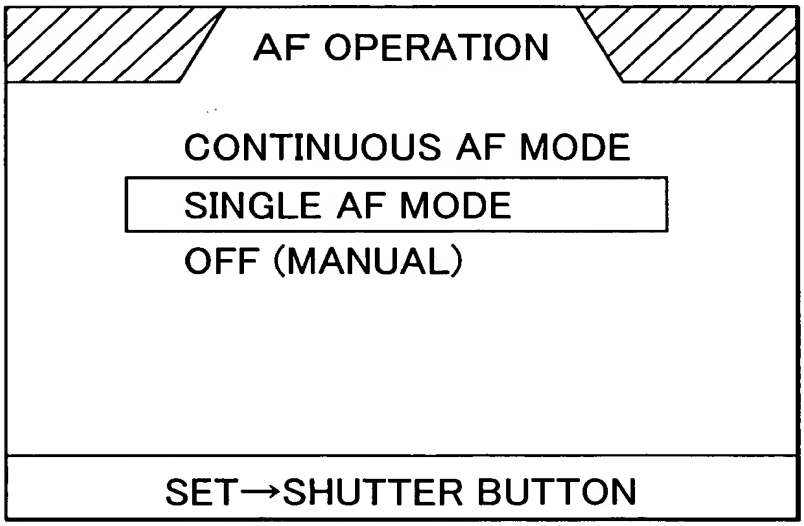

AF OPERATION
CONTINUOUS AF MODE
SINGLE AF MODE
OFF (MANUAL)
SET→SHUTTER BUTTON

FIG. 8

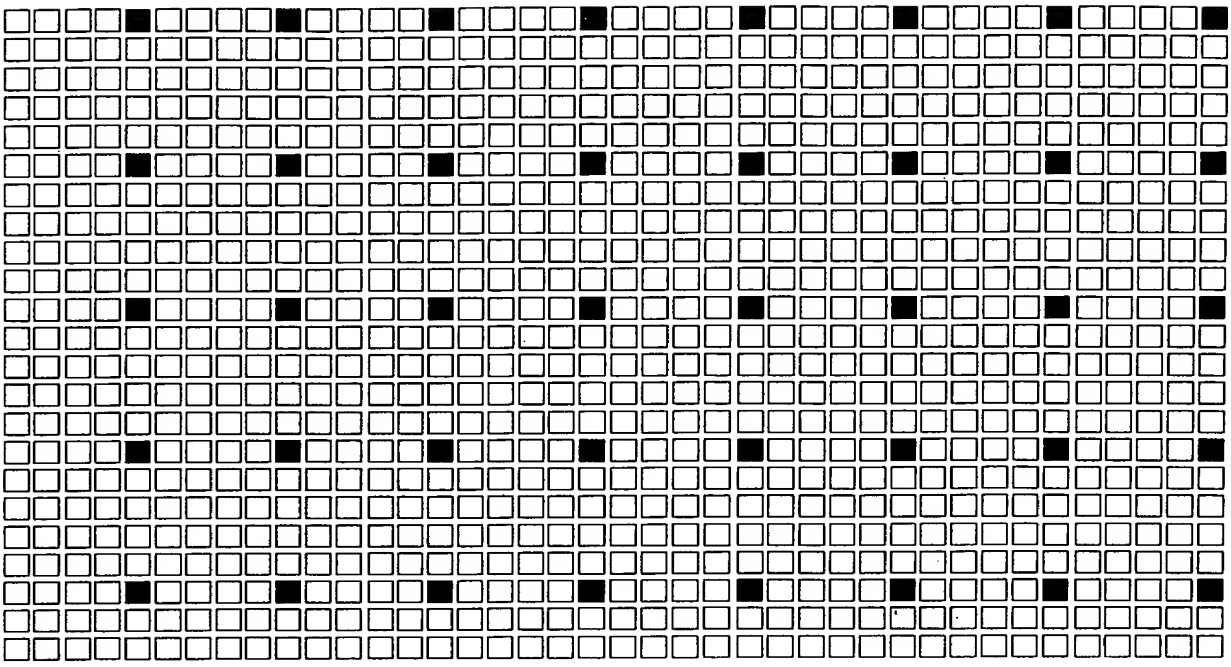


FIG. 9A

G	B	G	B	G	B	G	B ...
R	G	R	G	R	G	R	G ...
G	B	G	B	G	B	G	B ...
R	G	R	G	R	G	R	G ...
G	B	G	B	G	B	G	B ...
R	G	R	G	R	G	R	G ...
G	B	G	B	G	B	G	B ...

FIG. 9B

G	Ye	G	Ye	G	Ye	G	Ye ...
Cy	Ma	Cy	Ma	Cy	Ma	Cy	Ma ...
G	Ye	G	Ye	G	Ye	G	Ye ...
Cy	Ma	Cy	Ma	Cy	Ma	Cy	Ma ...
G	Ye	G	Ye	G	Ye	G	Ye ...
Cy	Ma	Cy	Ma	Cy	Ma	Cy	Ma ...
G	Ye	G	Ye	G	Ye	G	Ye ...

FIG. 10A

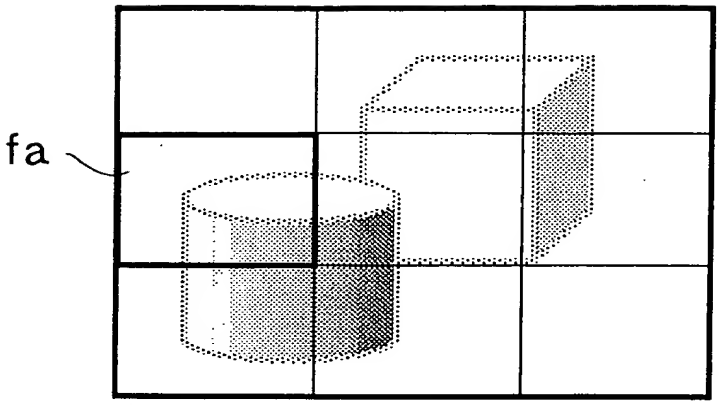


FIG. 10B

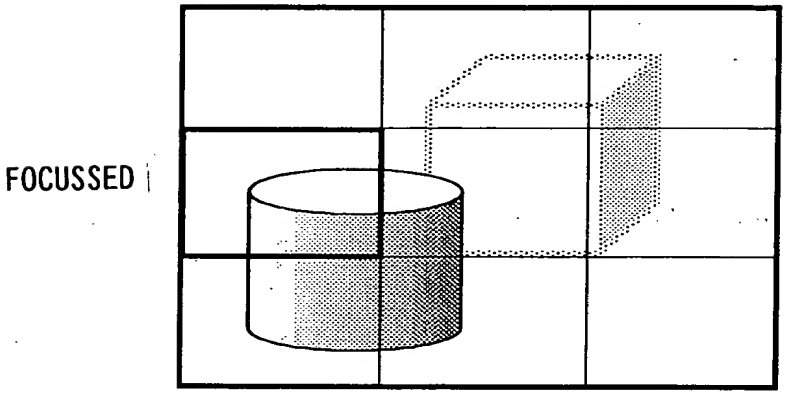


FIG. 10C

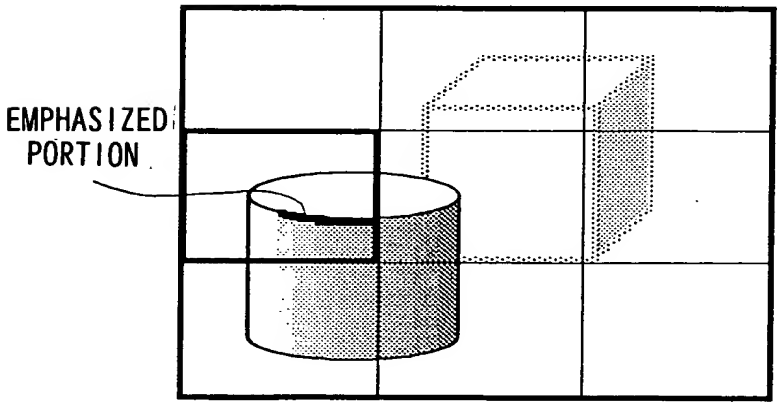


FIG. 11

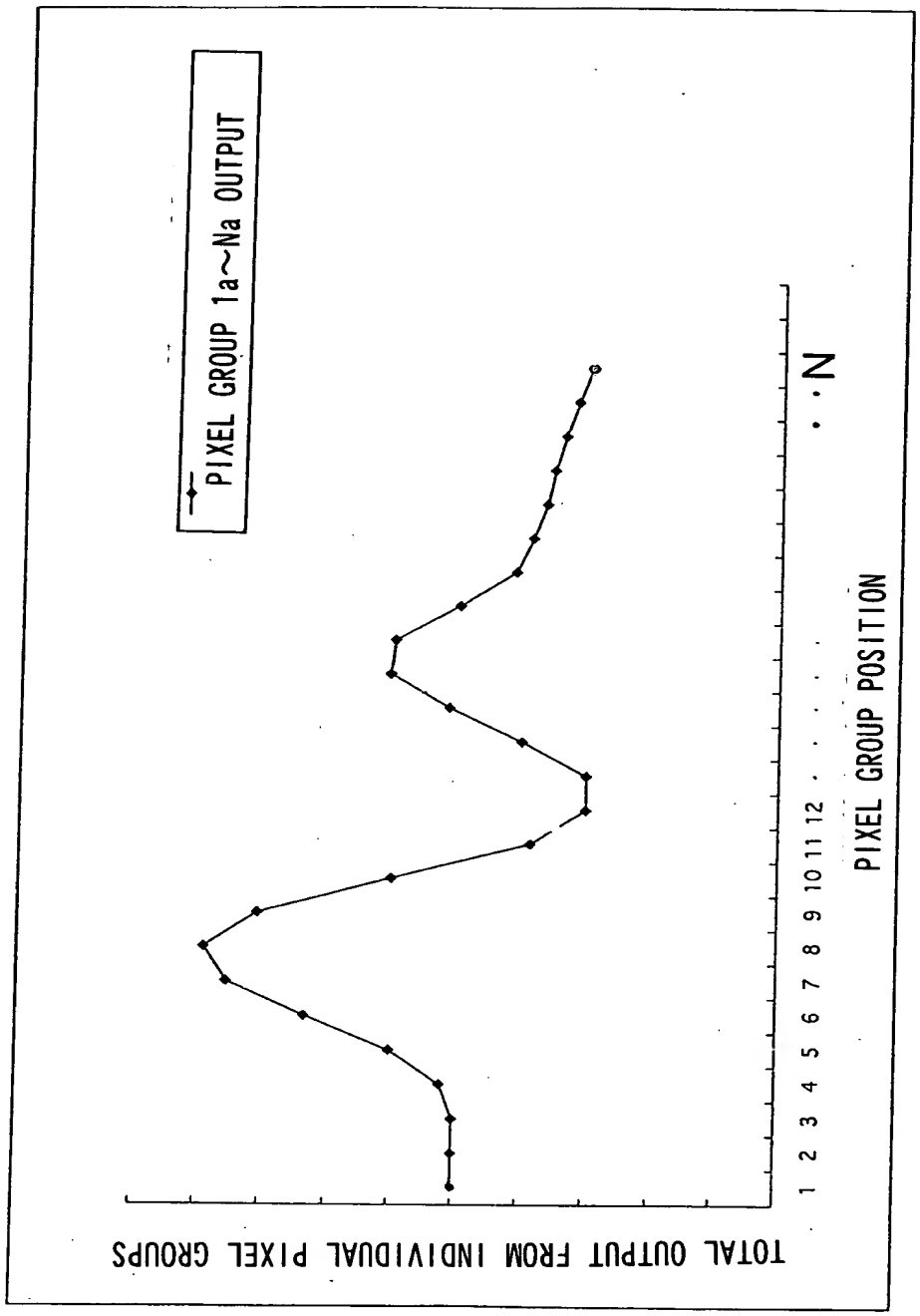

PIXEL GROUP 1a~Na OUTPUT
TOTAL OUTPUT FROM INDIVIDUAL PIXEL GROUPS
1 2 3 4 5 6 7 8 9 10 11 12 . . . . . N
PIXEL GROUP POSITION

FIG.12

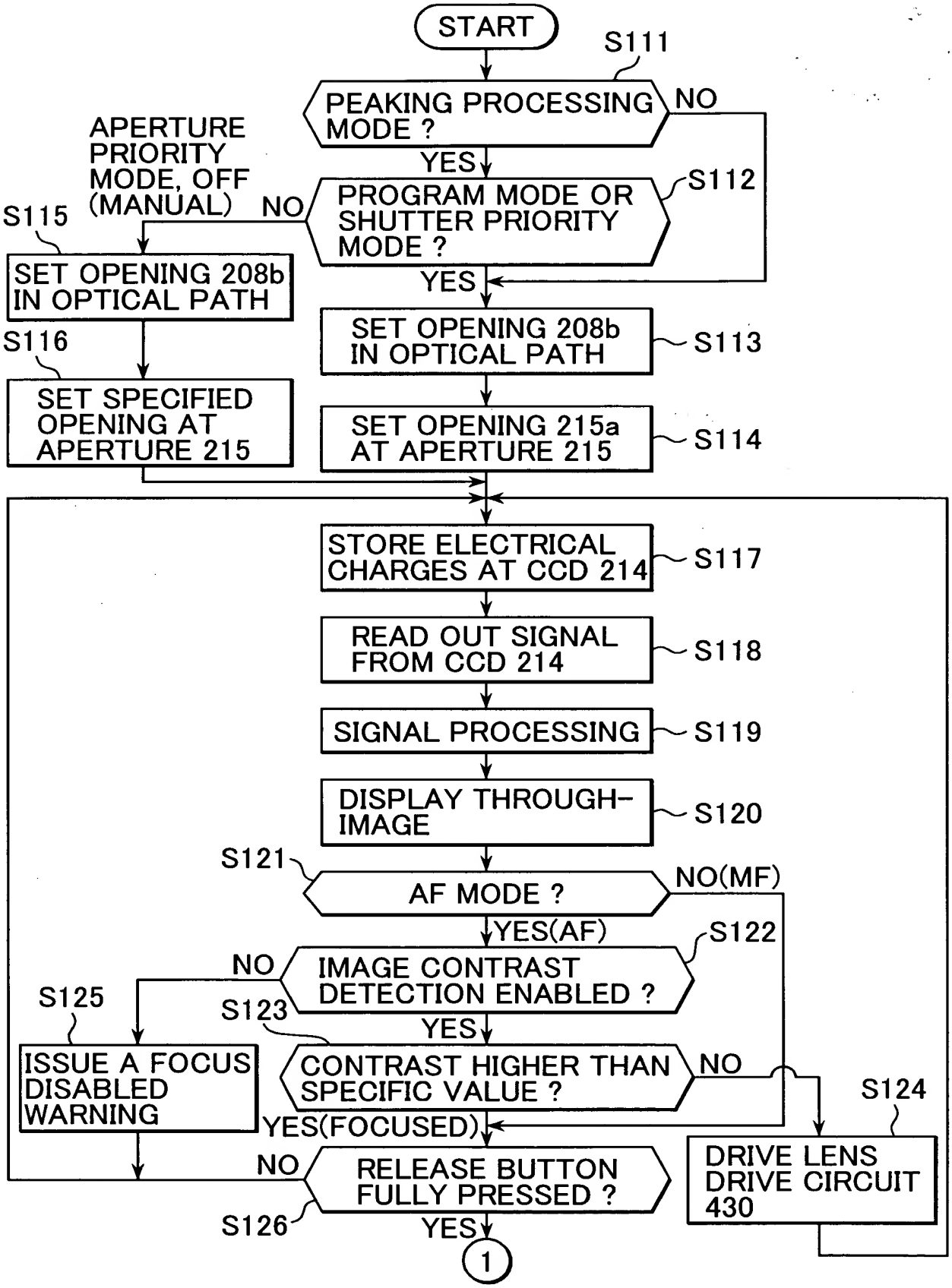

START
S111
PEAKING PROCESSING MODE ?
NO
YES
APERTURE PRIORITY MODE, OFF (MANUAL)
S112
PROGRAM MODE OR SHUTTER PRIORITY MODE ?
NO
S115
YES
SET OPENING 208b IN OPTICAL PATH
SET OPENING 208b IN OPTICAL PATH
S113
S116
SET SPECIFIED OPENING AT APERTURE 215
SET OPENING 215a AT APERTURE 215
S114
STORE ELECTRICAL CHARGES AT CCD 214
S117
READ OUT SIGNAL FROM CCD 214
S118
SIGNAL PROCESSING
S119
DISPLAY THROUGH-IMAGE
S120
S121
AF MODE ?
NO(MF)
YES(AF)
S122
NO
IMAGE CONTRAST DETECTION ENABLED ?
S125
S123
YES
ISSUE A FOCUS DISABLED WARNING
CONTRAST HIGHER THAN SPECIFIC VALUE ?
NO
S124
YES(FOCUSED)
NO
RELEASE BUTTON FULLY PRESSED ?
DRIVE LENS DRIVE CIRCUIT 430
S126
YES
1

FIG.13

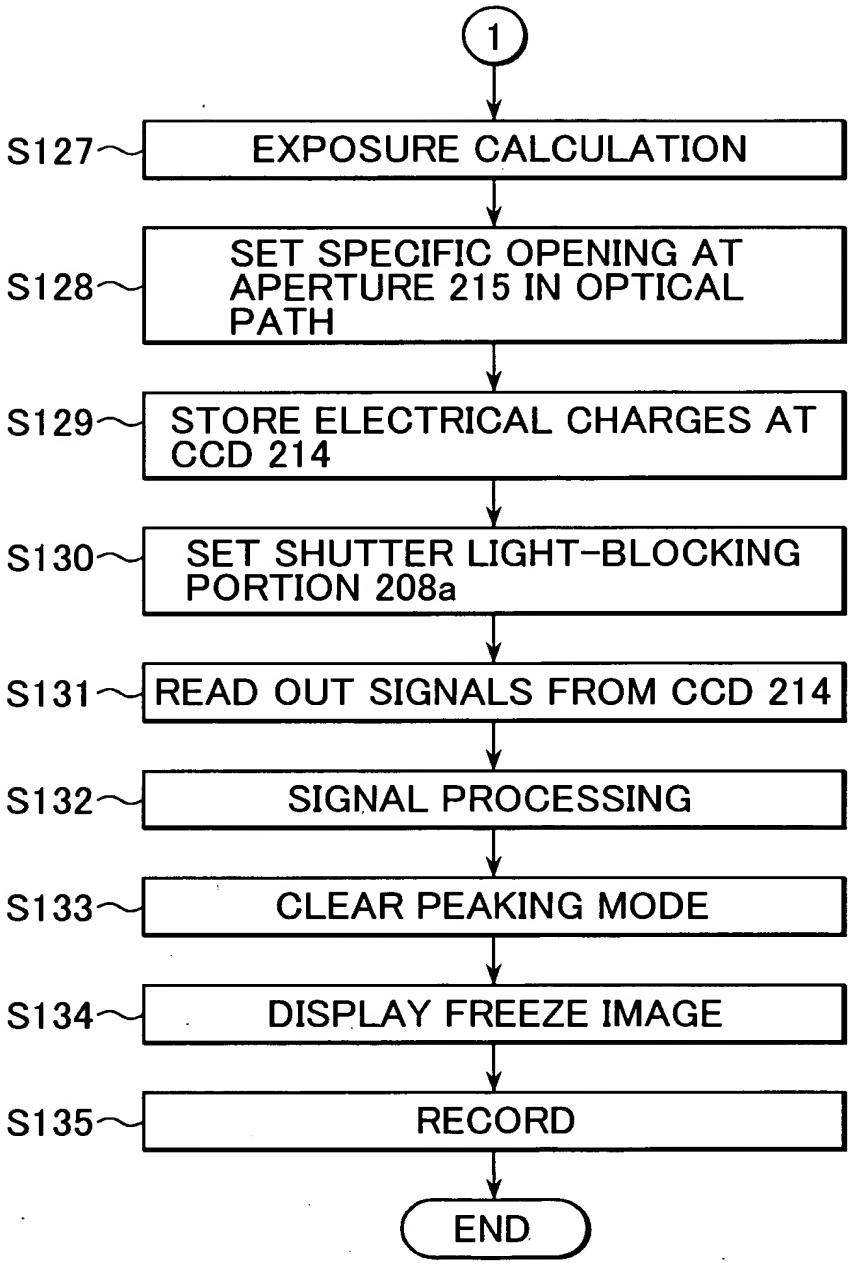

1
S127
EXPOSURE CALCULATION
S128
SET SPECIFIC OPENING AT APERTURE 215 IN OPTICAL PATH
S129
STORE ELECTRICAL CHARGES AT CCD 214
S130
SET SHUTTER LIGHT-BLOCKING PORTION 208a
S131
READ OUT SIGNALS FROM CCD 214
S132
SIGNAL PROCESSING
S133
CLEAR PEAKING MODE
S134
DISPLAY FREEZE IMAGE
S135
RECORD
END

FIG.14

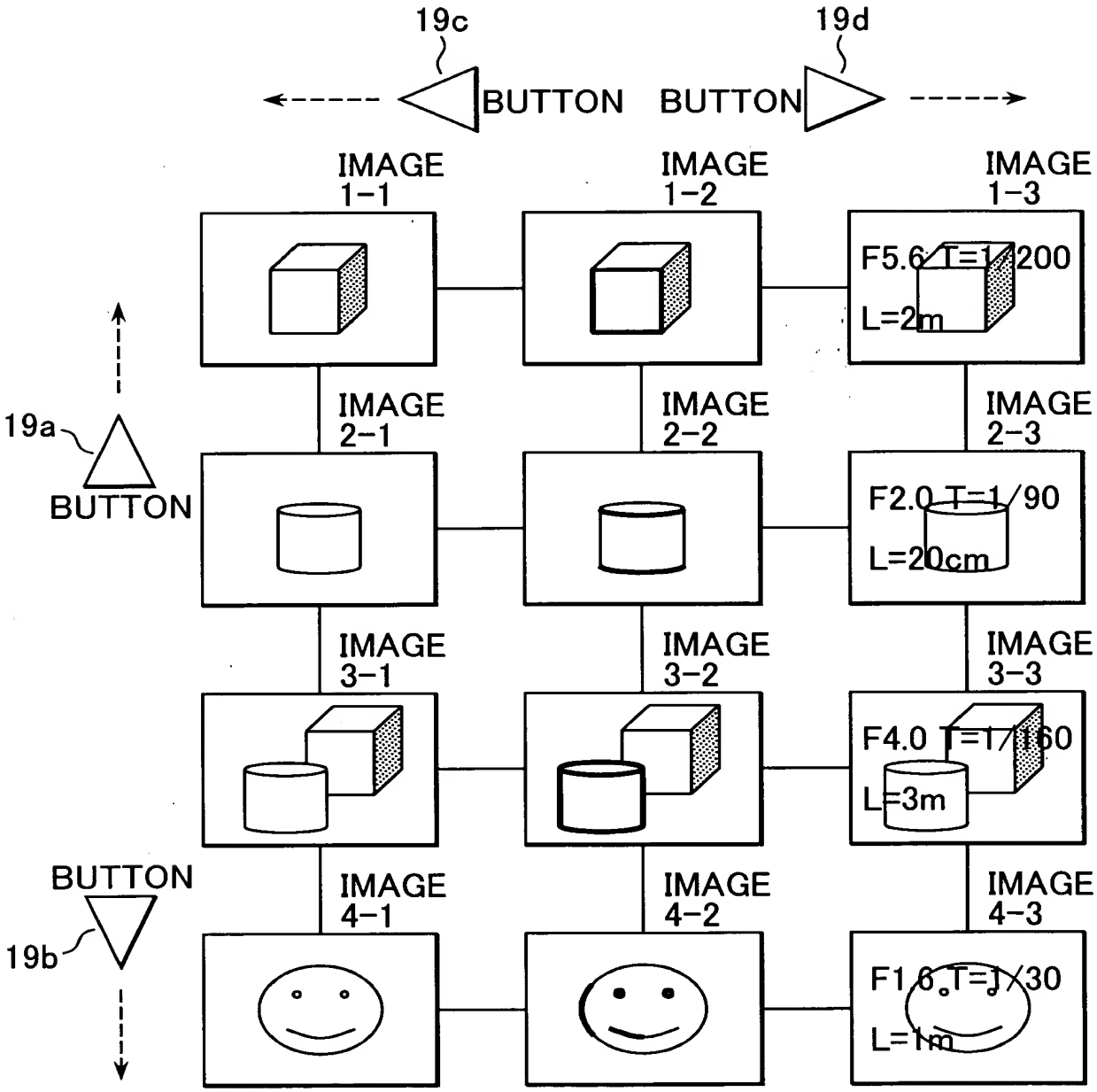

19c
19d
BUTTON
BUTTON
IMAGE 1-1
IMAGE 1-2
IMAGE 1-3
F5.6 T=1/200
L=2m
19a
BUTTON
IMAGE 2-1
IMAGE 2-2
IMAGE 2-3
F2.0 T=1/90
L=20cm
IMAGE 3-1
IMAGE 3-2
IMAGE 3-3
F4.0 T=1/160
L=3m
BUTTON
19b
IMAGE 4-1
IMAGE 4-2
IMAGE 4-3
F1.6 T=1/30
L=1m

FIG.15

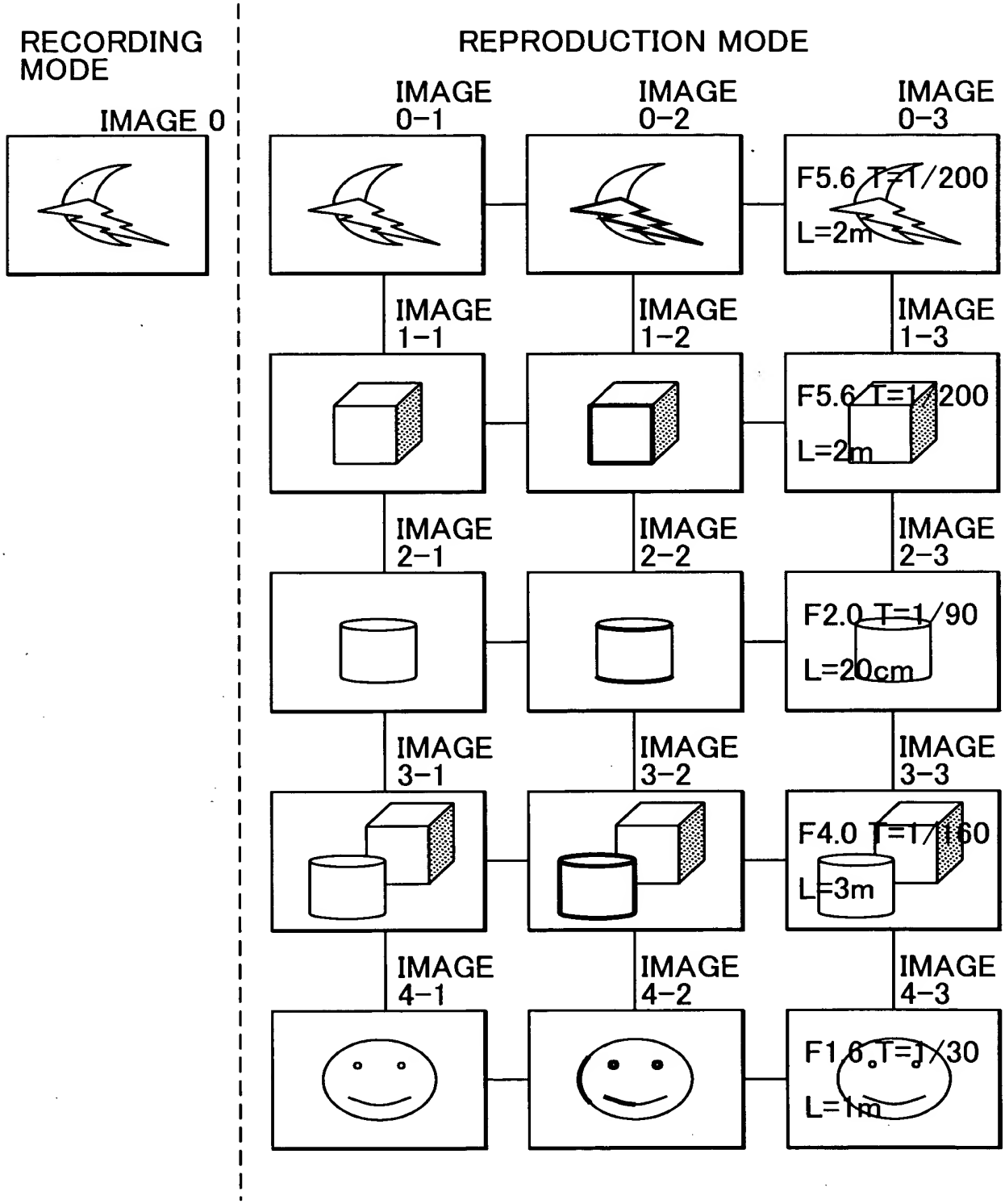

RECORDING MODE
IMAGE 0
REPRODUCTION MODE
IMAGE 0-1
IMAGE 0-2
IMAGE 0-3
F5.6 T=1/200
L=2m
IMAGE 1-1
IMAGE 1-2
IMAGE 1-3
F5.6 T=1/200
L=2m
IMAGE 2-1
IMAGE 2-2
IMAGE 2-3
F2.0 T=1/90
L=20cm
IMAGE 3-1
IMAGE 3-2
IMAGE 3-3
F4.0 T=1/160
L=3m
IMAGE 4-1
IMAGE 4-2
IMAGE 4-3
F1.6 T=1/30
L=1m

FIG.16

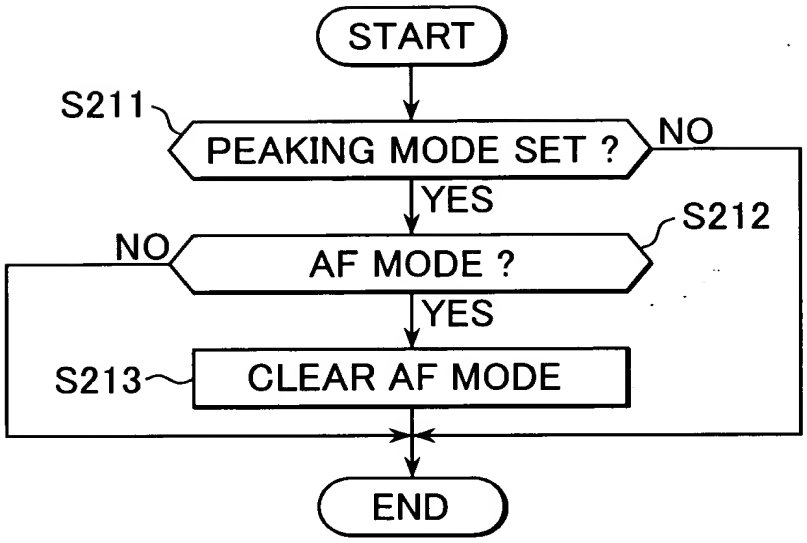

START
S211
PEAKING MODE SET ?
NO
YES
S212
NO
AF MODE ?
YES
S213
CLEAR AF MODE
END

FIG. 17 A

$G_{1,1}$	$B_{1,6}$	$G_{1,11}$	$B_{1,16}$
$R_{6,1}$	$G_{6,6}$	$R_{6,11}$	$G_{6,16}$
$G_{11,1}$	$B_{11,6}$	$G_{11,11}$	$B_{11,16}$
$R_{16,1}$	$G_{16,6}$	$R_{16,11}$	$G_{16,16}$

FIG. 17 B

$Y_{1,1}$	$Y_{1,6}$	$Y_{1,11}$	$Y_{1,16}$
$Y_{6,1}$	$Y_{6,6}$	$Y_{6,11}$	$Y_{6,16}$
$Y_{11,1}$	$Y_{11,6}$	$Y_{11,11}$	$Y_{11,16}$
$Y_{16,1}$	$Y_{16,6}$	$Y_{16,11}$	$Y_{16,16}$

FIG. 17 C

$Y_{6,6}$	$Y_{6,6}$	$Y_{6,11}$	$Y_{6,11}$
$Y_{6,6}$	$Y_{6,6}$	$Y_{6,11}$	$Y_{6,11}$
$Y_{11,6}$	$Y_{11,6}$	$Y_{11,11}$	$Y_{11,11}$
$Y_{11,6}$	$Y_{11,6}$	$Y_{11,11}$	$Y_{11,11}$

FIG.18

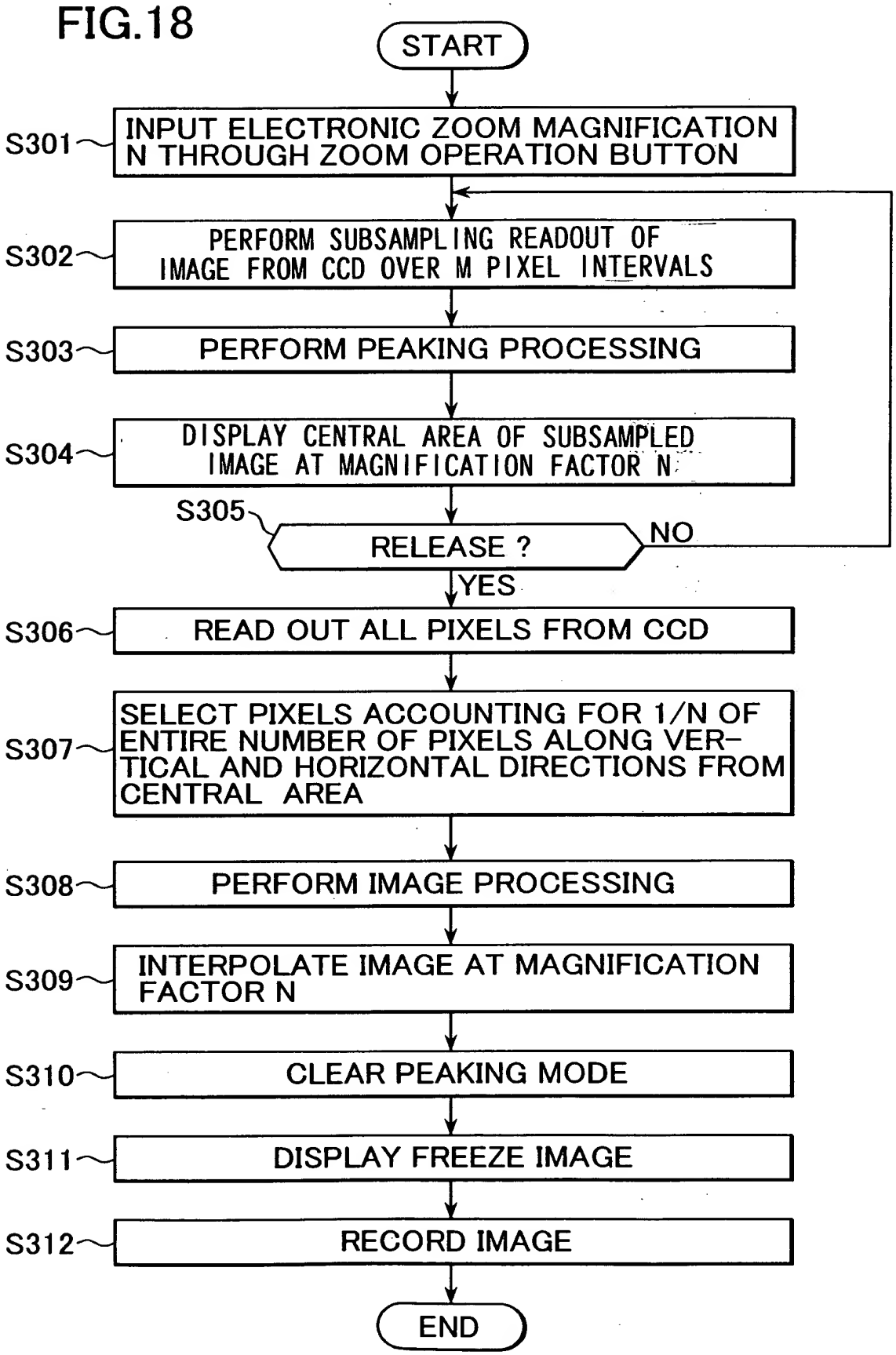

START
S301
INPUT ELECTRONIC ZOOM MAGNIFICATION N THROUGH ZOOM OPERATION BUTTON
S302
PERFORM SUBSAMPLING READOUT OF IMAGE FROM CCD OVER M PIXEL INTERVALS
S303
PERFORM PEAKING PROCESSING
S304
DISPLAY CENTRAL AREA OF SUBSAMPLED IMAGE AT MAGNIFICATION FACTOR N
S305
RELEASE ?
NO
YES
S306
READ OUT ALL PIXELS FROM CCD
S307
SELECT PIXELS ACCOUNTING FOR 1/N OF ENTIRE NUMBER OF PIXELS ALONG VERTICAL AND HORIZONTAL DIRECTIONS FROM CENTRAL AREA
S308
PERFORM IMAGE PROCESSING
S309
INTERPOLATE IMAGE AT MAGNIFICATION FACTOR N
S310
CLEAR PEAKING MODE
S311
DISPLAY FREEZE IMAGE
S312
RECORD IMAGE
END

FIG.19

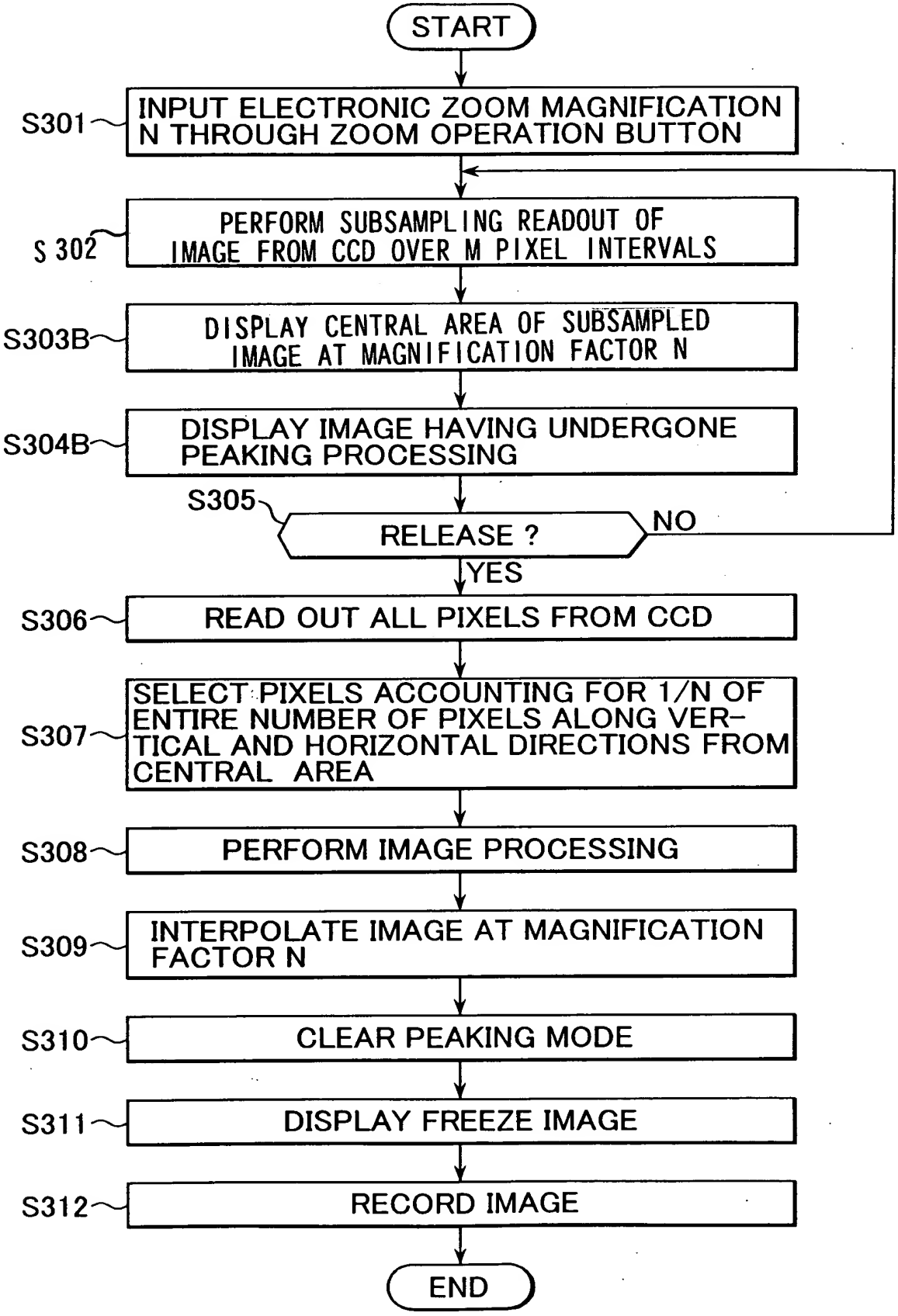

START
S301
INPUT ELECTRONIC ZOOM MAGNIFICATION N THROUGH ZOOM OPERATION BUTTON
S 302
PERFORM SUBSAMPLING READOUT OF IMAGE FROM CCD OVER M PIXEL INTERVALS
S303B
DISPLAY CENTRAL AREA OF SUBSAMPLED IMAGE AT MAGNIFICATION FACTOR N
S304B
DISPLAY IMAGE HAVING UNDERGONE PEAKING PROCESSING
S305
RELEASE ?
NO
YES
S306
READ OUT ALL PIXELS FROM CCD
S307
SELECT PIXELS ACCOUNTING FOR 1/N OF ENTIRE NUMBER OF PIXELS ALONG VERTICAL AND HORIZONTAL DIRECTIONS FROM CENTRAL AREA
S308
PERFORM IMAGE PROCESSING
S309
INTERPOLATE IMAGE AT MAGNIFICATION FACTOR N
S310
CLEAR PEAKING MODE
S311
DISPLAY FREEZE IMAGE
S312
RECORD IMAGE
END

FIG.20

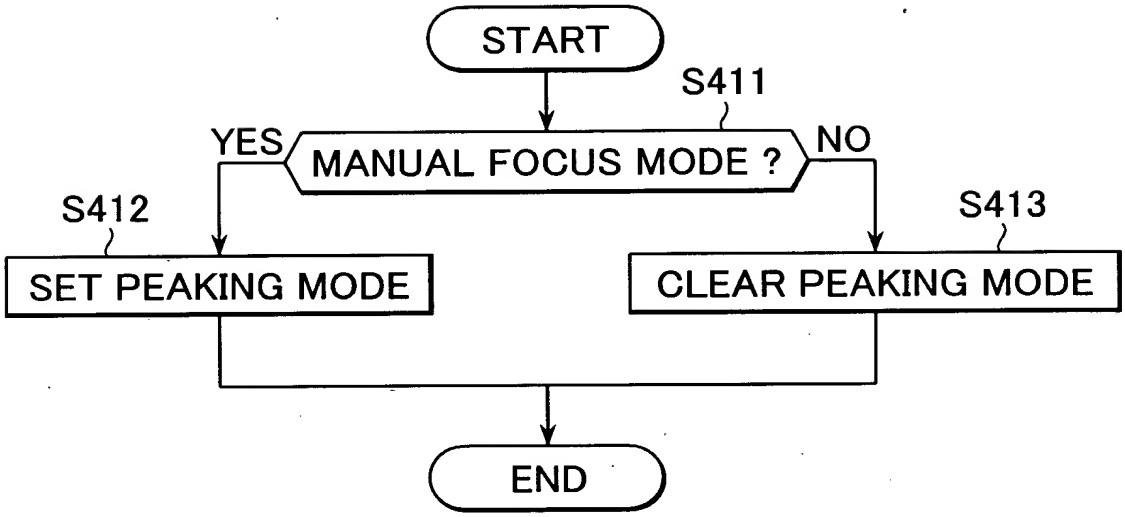

START
S411
YES
MANUAL FOCUS MODE ?
NO
S412
S413
SET PEAKING MODE
CLEAR PEAKING MODE
END

FIG.21

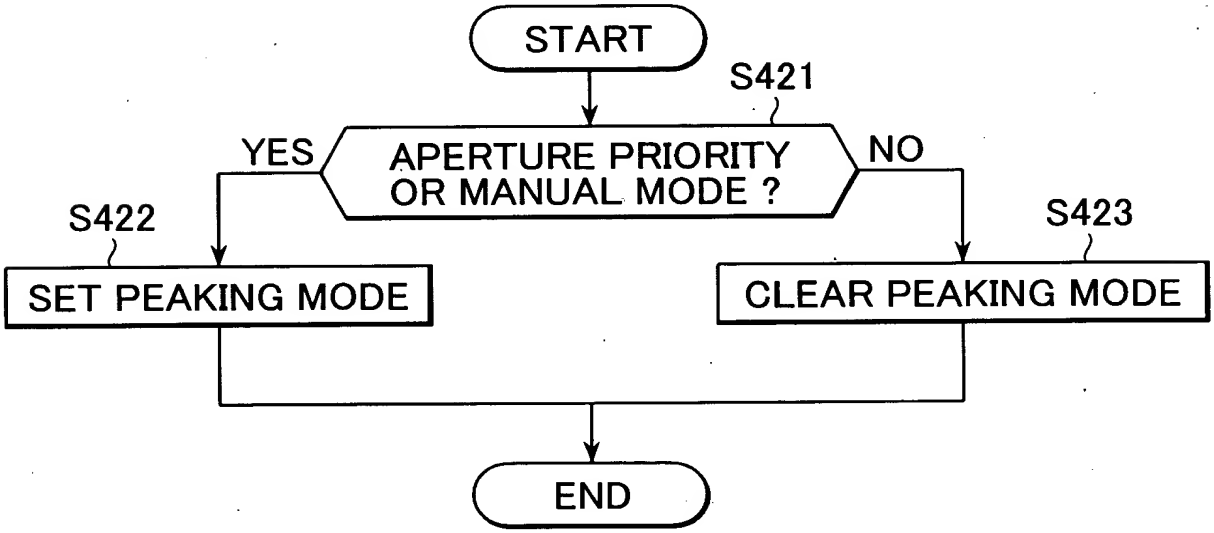

START
S421
YES
APERTURE PRIORITY
OR MANUAL MODE ?
NO
S422
S423
SET PEAKING MODE
CLEAR PEAKING MODE
END

FIG.22

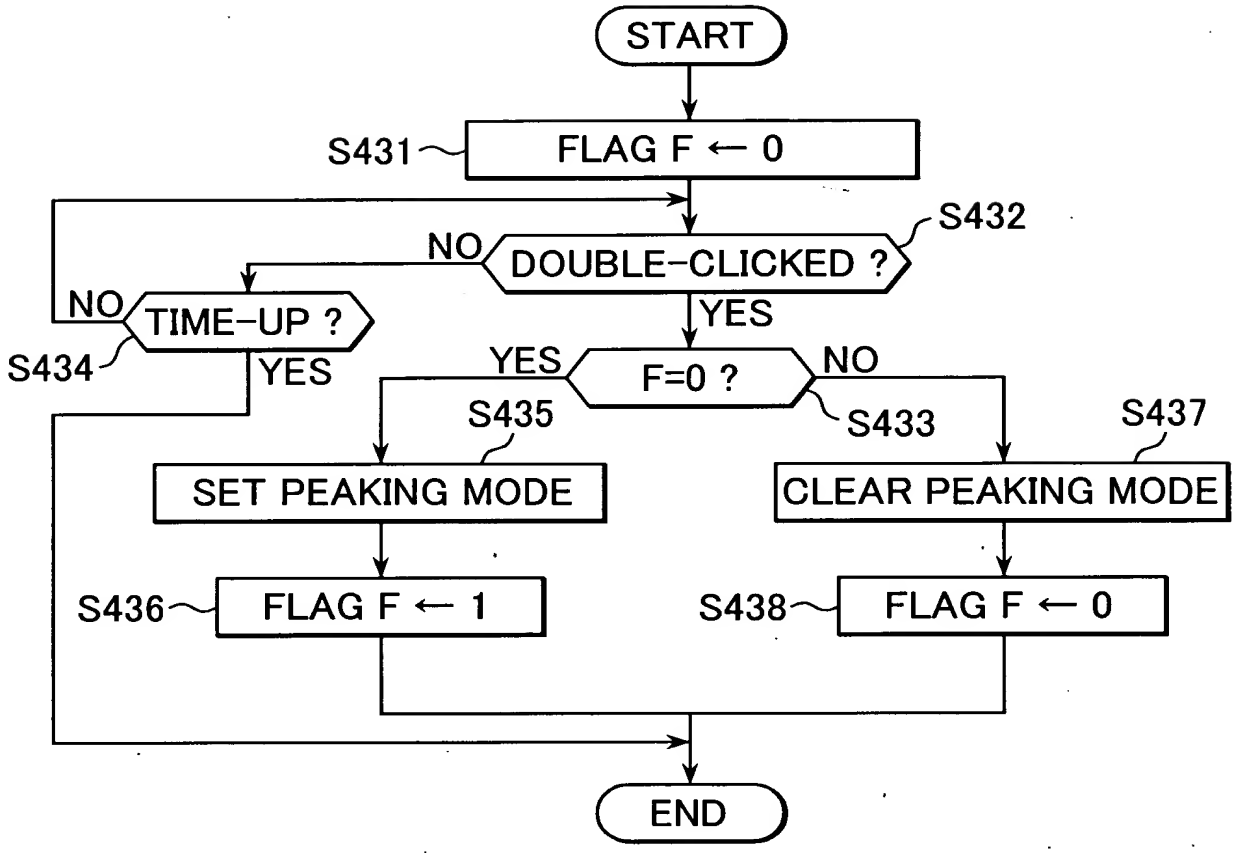

START
S431
FLAG F ← 0
S432
NO
DOUBLE-CLICKED ?
NO
TIME-UP ?
S434
YES
YES
F=0 ?
NO
S433
S435
S437
SET PEAKING MODE
CLEAR PEAKING MODE
S436
FLAG F ← 1
S438
FLAG F ← 0
END

FIG.23

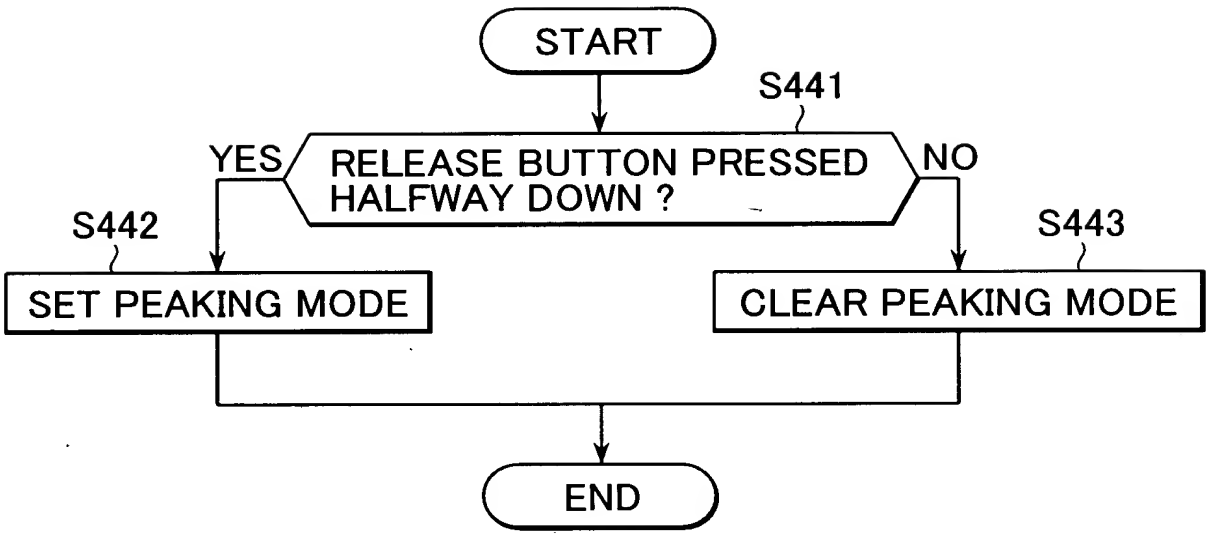

START
S441
RELEASE BUTTON PRESSED HALFWAY DOWN ?
YES
NO
S442
SET PEAKING MODE
S443
CLEAR PEAKING MODE
END

FIG.24

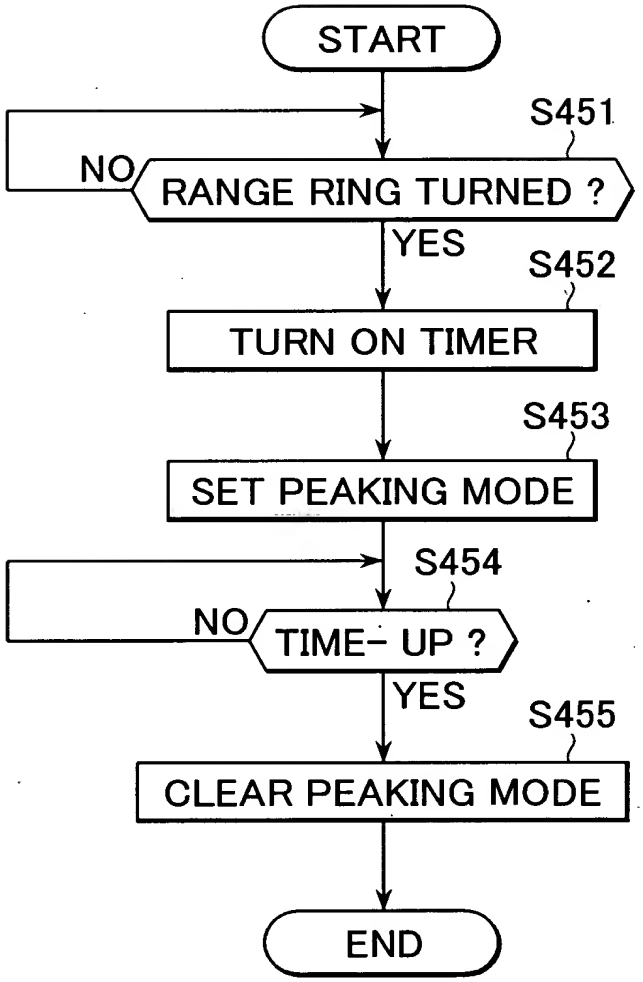

START
S451
NO
RANGE RING TURNED ?
YES
S452
TURN ON TIMER
S453
SET PEAKING MODE
S454
NO
TIME- UP ?
YES
S455
CLEAR PEAKING MODE
END

FIG.25

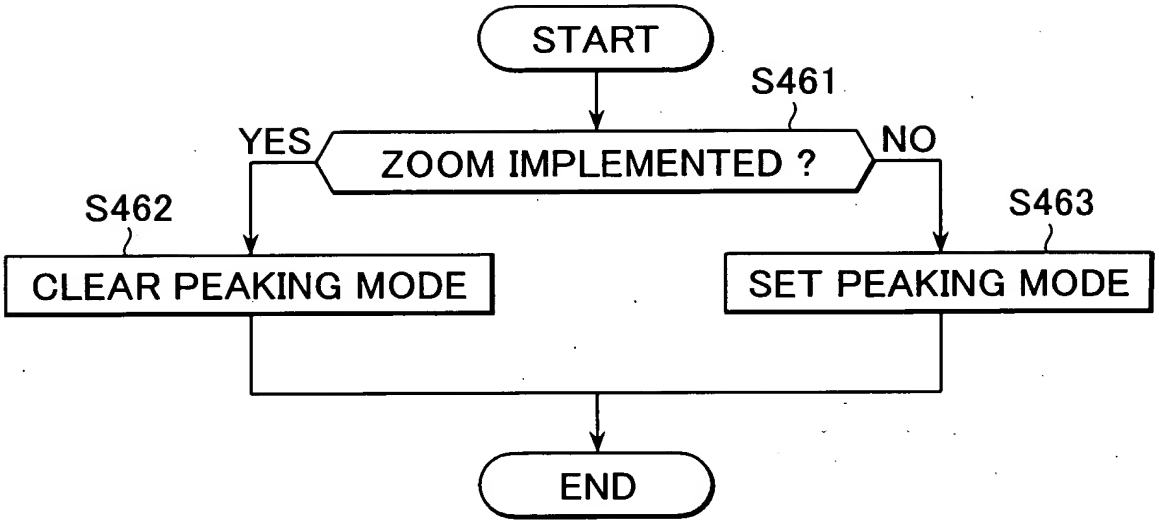

START
S461
YES
ZOOM IMPLEMENTED ?
NO
S462
S463
CLEAR PEAKING MODE
SET PEAKING MODE
END

FIG.26

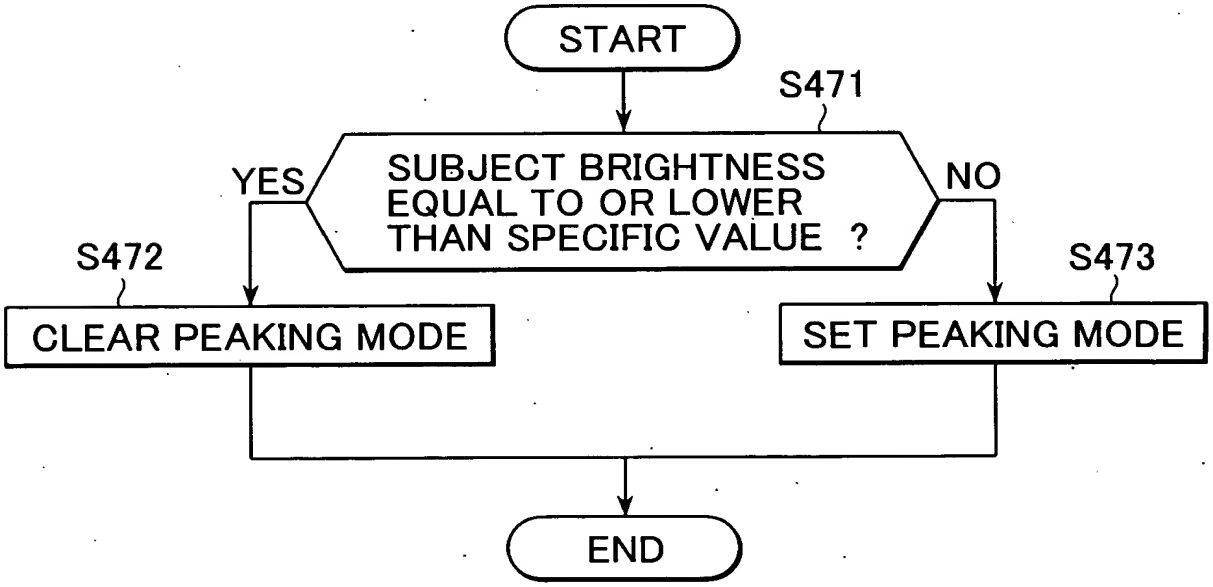

START
S471
YES
SUBJECT BRIGHTNESS EQUAL TO OR LOWER THAN SPECIFIC VALUE ?
NO
S472
S473
CLEAR PEAKING MODE
SET PEAKING MODE
END

FIG.27

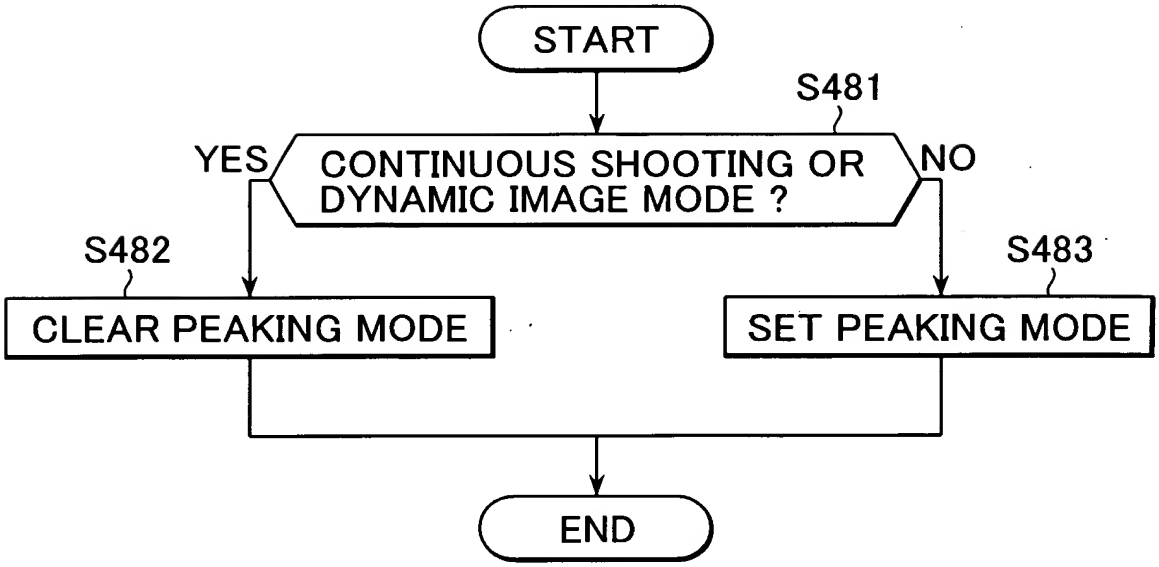

START
S481
YES
CONTINUOUS SHOOTING OR DYNAMIC IMAGE MODE ?
NO
S482
S483
CLEAR PEAKING MODE
SET PEAKING MODE
END

FIG.28

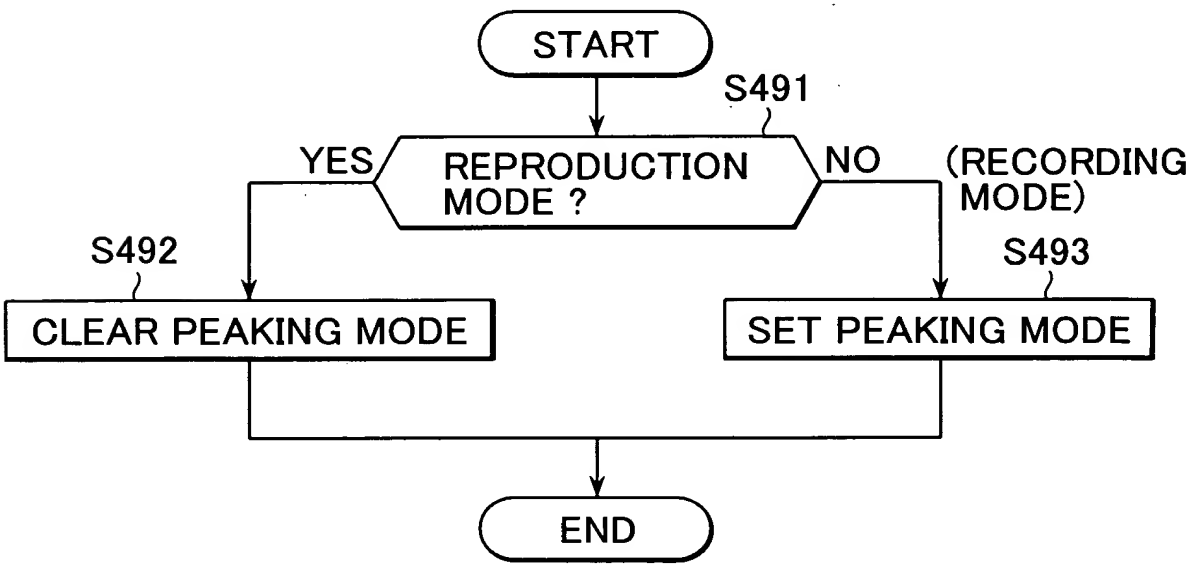

START
S491
YES
REPRODUCTION MODE ?
NO
(RECORDING MODE)
S492
S493
CLEAR PEAKING MODE
SET PEAKING MODE
END

FIG.29

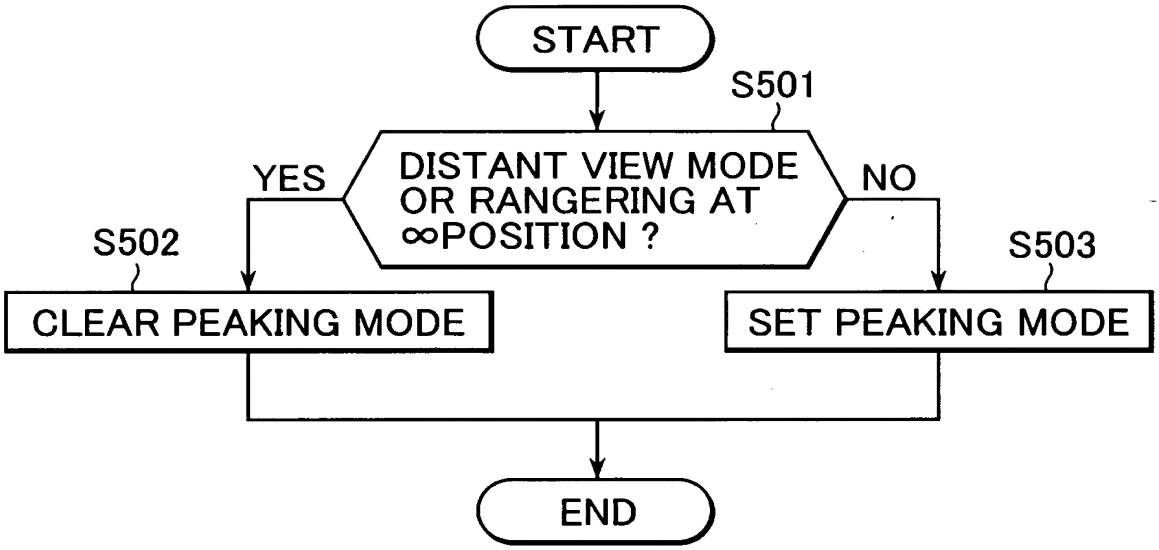

START
S501
DISTANT VIEW MODE OR RANGERING AT ∞POSITION ?
YES
NO
S502
CLEAR PEAKING MODE
S503
SET PEAKING MODE
END

FIG.30

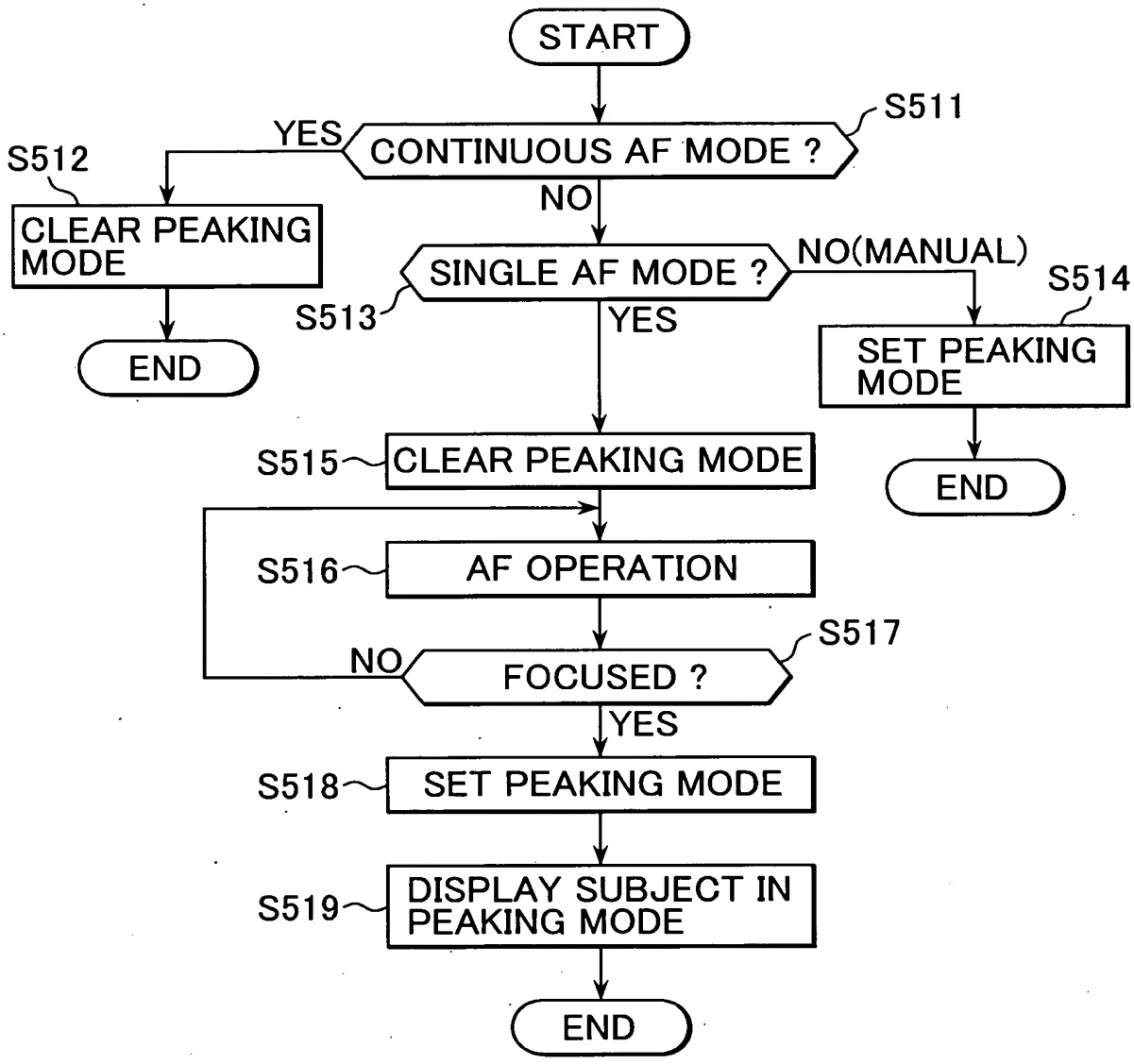

START
S511
CONTINUOUS AF MODE ?
YES
S512
CLEAR PEAKING MODE
END
NO
SINGLE AF MODE ?
NO(MANUAL)
S513
S514
SET PEAKING MODE
END
YES
S515
CLEAR PEAKING MODE
S516
AF OPERATION
S517
NO
FOCUSED ?
YES
S518
SET PEAKING MODE
S519
DISPLAY SUBJECT IN PEAKING MODE
END

FIG.31

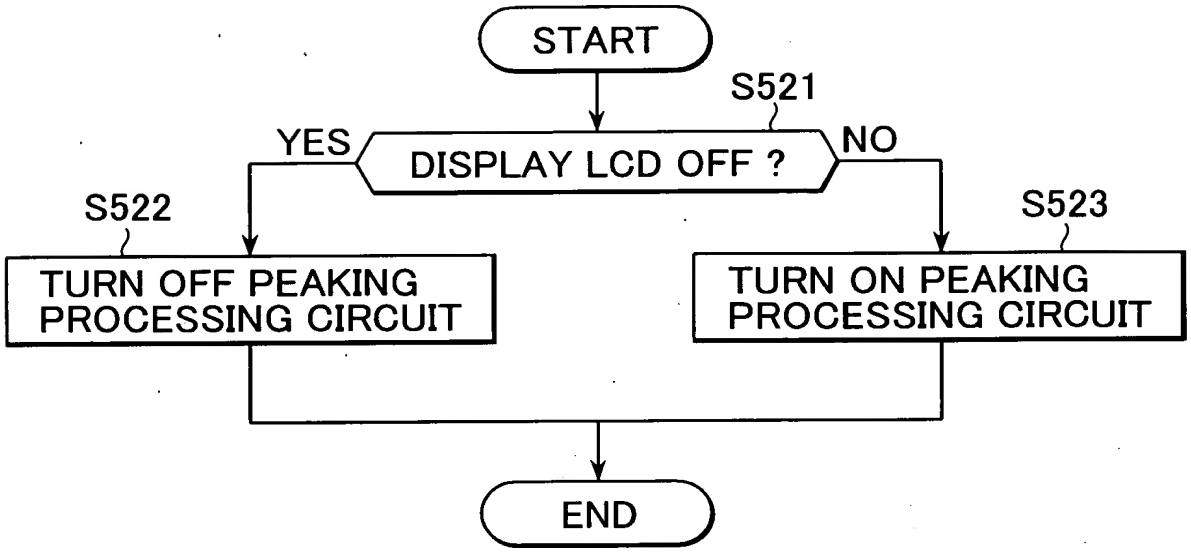
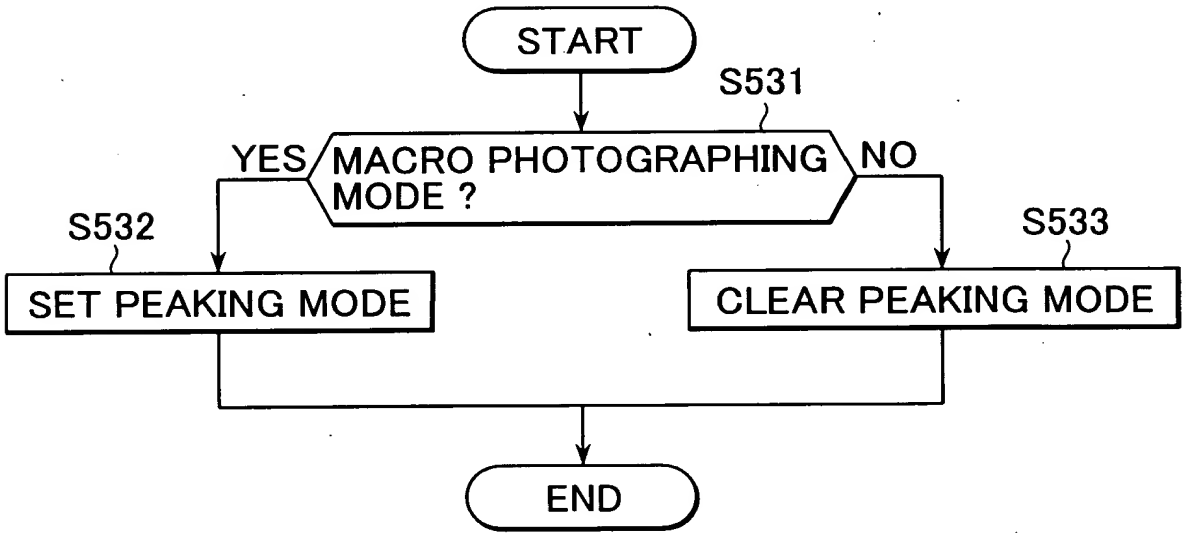

START
S521
YES
DISPLAY LCD OFF ?
NO
S522
S523
TURN OFF PEAKING PROCESSING CIRCUIT
TURN ON PEAKING PROCESSING CIRCUIT
END

FIG.32


START
S531
YES
MACRO PHOTOGRAPHING MODE ?
NO
S532
S533
SET PEAKING MODE
CLEAR PEAKING MODE
END